IECC 2021/ASHRAE 90.1 2019
Fiberglass Solutions

IECC 2021 Building Envelope Requirements, Table C402.1.4 Metal Building Walls			
Climate Zone	Prescriptive Maximum U-Factor	Compliance Options	
		U - Factor	Assembly Description
0 & 1	0.079	0.059	Single Layer, Filled Cavity Fiberglass System - R-25 with R-0.375 Foam Thermal Break Strip and Facing
2			
3			
4 (except Marine)	0.052	0.052	Single Layer, Filled Cavity Fiberglass System - R-30 with R-0.75 Foam Thermal Break Strip and Facing
5 (and Marine 4)	0.050	0.047	Double Layer, Fiberglass System - R-10 over the girts - R-25 in cavity with Facing
6			
7	0.044	0.042	Double Layer, Fiberglass System - R-16 over the girts - R-25 in cavity with Facing
8	0.039	0.039	Double Layer, Fiberglass System - R-16 over the girts - R-30 in cavity with Facing

ASHRAE 90.1-2019 Building Envelope Requirements, Table 5.5 Non-Residential Metal Building Walls			
Climate Zone	Prescriptive Maximum U-Factor	Compliance Options	
		U - Factor	Assembly Description
0 & 1	0.094	0.059	Single Layer, Filled Cavity Fiberglass System - R-25 with 0.375 Foam Thermal Break Strip and Facing
2			
3			
4	0.060		
5	0.050	0.047	Double Layer, Fiberglass System - R-10 over the girts - R-25 in cavity with Facing
6			
7	0.044	0.042	Double Layer, Fiberglass System - R-16 over the girts - R-25 in cavity with Facing
8	0.039	0.039	Double Layer, Fiberglass System - R-16 over the girts - R-30 in cavity with Facing

IECC 2021 Building Envelope Requirements, Table C402.1.4 Metal Building Roof			
Climate Zone	Prescriptive Maximum U-Factor	Compliance Options	
		U - Factor	Assembly Description
0 & 1[a]	0.035	0.035**	Filled Cavity / Long Tab Banded Insulation System - Faced R-25 plus Unfaced R-11 with R-5 Thermal Blocks and Standing Seam Roof
2[a]			
3[a]			
4 (except Marine)			
5 (and Marine 4)			
6	0.031	0.029**	Filled Cavity / Long Tab Banded Insulation System - Faced R-25 plus Unfaced R-19 with R-5 Thermal Blocks and Standing Seam Roof
7	0.029		
8	0.026	----	----

(*) Use with COMcheck - Other Metal Building Roof
(**) Use with COMcheck - Other Metal Building Roof, min. 10" purlins

([a]) Metal Building Roof with a slope less than 2:12, installed directly above cooled conditioned space in Climate Zones 0,1,2 & 3 shall comply with one of the following options; minimum 3 year aged Solar Reflectance of 0.55 and a minimum 3 year aged Thermal Emittance of 0.75 or a minimum 3 year aged Solar Reflectance Index of 64, see C402.3 for a list of options.

ASHRAE 2019 Building Envelope Requirements, Table 5.5 Non-Residential Metal Building Roof			
Climate Zone	Prescriptive Maximum U-Factor	Compliance Options	
		U - Factor	Assembly Description
0 & 1[b]	0.041	0.037	Filled Cavity / Long Tab Banded Insulation System - Faced R-19 plus Unfaced R-11 with R-5 Thermal Blocks and Standing Seam Roof
2			
3			
4	0.037		
5			
6	0.031	0.029***	Filled Cavity / Long Tab Banded Insulation System - Faced R-25 plus Unfaced R-19 with R-5 Thermal Blocks and Standing Seam Roof
7	0.029		
8	0.026	----	----

(***) Use with COMcheck - Other Metal Building Roof, min. 10" purlins

([b]) Metal Building Roof with a slope less than 2:12, installed directly above cooled conditioned space in Climate Zones 0 & 1 shall comply with one of the following options; minimum 3 year aged Solar Reflectance of 0.55 and a minimum 3 year aged Thermal Emittance of 0.75 or a minimum 3 year aged Solar Reflectance Index of 64, if not the roof insulation must be increased by installing a system with a maximum U - Factor of 0.028.